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scientific and medical research. When he reported to him what had passed that day, they might be sure the Prime Minister would give it the most sympathetic consideration. He was far from laying it down that the state should not on occasion imitate our forefathers in the case of Jenner and offer a pecuniary reward to some great man of science whose services had been exceptional and whose achievements were obviously his own. But he would not wish that to be a part of the regular system of dealing with discovery in this country. He hoped that what the government had already done would be found to be far greater in its ultimate results than perhaps the public at large, or even men of science, as yet had realized. He feared that they had not been supported as they might have been by men of great wealth in this country. There had been admirable exceptions, but either we had fewer millionaires than the Americans or we were less lucky in them, for there was no doubt that private individuals across the Atlantic had contributed on a scale which did justice to their generosity and was likely to produce great results for the whole world. Probably it was out of the question to hope completely to emulate them, but he did not despair that among the wealthy men in this country some might be found, in addition to those who had already shown themselves generous benefactors, who would do much to aid and stimulate that research into the laws of nature and that application of those laws upon which our main hopes for the amelioration of the lot of the human race must depend.

SCIENTIFIC EVENTS

THE MANUFACTURE OF SYNTHETIC AMMONIA IN ENGLAND¹

THE Ministry of Munitions announces that Lord Inverforth has arranged for the sale of H. M. Nitrate Factory of Billingham-on-Tees to Messrs. Brunner, Mond, and Co., Ltd. The purchasers will form a company to take over the factory, and will be responsible for all

outstanding liabilities of the ministry in connection with the project. This factory, the erection of which was commenced early in 1918 by the Department of Explosives Supply, was designed for the manufacture of synthetic ammonia and for the production of 60,000 to 70,000 tons of ammonium nitrate annually.

During 1916 the Nitrogen Products Committee had established a laboratory in premises placed at its disposal in the new Ramsay building of University College, London, and the Committee's research staff, under the direction of Dr. J. A. Harker, was engaged in an experimental investigation of a number of problems relating to nitrogen fixation. Although it was not anticipated that there would be any shortage of supplies of ammonia, yet it was deemed desirable, in view of the special ability of the synthetic ammonia process for the needs of this country, that an experimental study of it should be made forthwith, so that the required information should be available if necessary.

After a year's experimental work, the progress made was considered so encouraging that the Committee decided to establish a moderate-sized technical trial unit, and funds for the purpose were allocated by the treasury. It was hoped, by means of this plant, that a study of the chemical engineering problems could follow upon that already made of the pure chemistry of the reactions involved, but the committee did not suggest the establishment of the process as a war measure upon an industrial scale. In 1917, however, the Explosives Supply Department considered that the position reached in the experiments justified it in recommending the erection of a large works, in substitution for the committee's cyanamide project, and a site at Billingham, some 260 acres in extent, was ultimately chosen for this purpose. But a number of difficulties supervened, and construction was slow, and at the time of the armistice only a few permanent buildings and a number of temporary structures had been erected, though a large amount of plant had been ordered.

The purchasers of the factory now undertake

¹ From *Nature*.

to complete the scheme by providing the additional buildings and plant required for the synthesis of ammonia and its oxidation to nitric acid and nitrates suitable for the manufacture of explosives and fertilizers. It is understood that the company has acquired a large amount of additional land and that it intends to develop the project on a very large scale. The factory has been re-designed on a peace as distinct from its former war basis, and in many particulars the new plant will represent a substantial advance, both in the ammonia and nitric acid sections, on anything previously used in Germany.

SPANISH EDITION OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

At the meeting in New Orleans the board of trustee's presented the following report:

The first year of the Spanish edition of *The Journal* has been reasonably satisfactory. Its publication was undertaken with some hesitancy because it meant a venture in an entirely new field. Other periodicals had been published in this country in the Spanish language for circulation in South and Central America, but their publication was undertaken for commercial reasons. Our Spanish edition entered the field solely as a scientific periodical for educative and scientific purposes, and it has been received with approbation. The field was a difficult one to work in the first place because there was not available any physician's directory, or any even fairly reliable list of physicians of standing. However, a list of such physicians has been gradually assembled so that now there is a fairly reliable one at the association headquarters. Included in this list are the physicians of Central and South America and the Philippine Islands.

Another difficulty has been the mailing facilities; these have been anything but satisfactory. Under normal conditions it takes a long time for a communication to reach the South American countries, with the exception of those bordering on the Gulf of Mexico.

At the end of the year the subscription list comprised 2,908 names. To those who appreciate the difficulties and know the conditions that prevailed at the beginning, this must be regarded as quite satisfactory. Roughly, this circulation is as follows: The largest number of subscribers naturally are in Mexico—539; in Cuba next, 530; Argentina,

270; Brazil, 194 (in Brazil Portuguese is the language in general use, therefore it is rather remarkable that this number has been secured there); Chile, 179; Spain, 142; Peru, 101. The rest of the circulation is in Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Paraguay, Salvador, Santo Domingo, Uruguay, Venezuela, Panama and Porto Rico.

It is not to be expected that this journal could be published without a loss for the first few years. As will be remembered, the venture was undertaken at the request of the International Health Board of the Rockefeller Foundation, which agreed to pay half the loss. It should be explained in this connection that the number of copies of each issue printed was 4,500 to 5,500, and that the excess above those subscribed for was sent out as sample copies. Hereafter, of course, there will be fewer sample copies distributed; consequently a less expense with an increased income. During the months of January, February and March the circulation has been steadily increasing. The actual loss to the association to date has been less than \$10,000, which amount promises to be returned with more than gratifying results within the first five-year period of its publication.

GRANTS FOR RESEARCH MADE BY THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE Committee on Grants of the association held a meeting in April, and distributed grants amounting to forty-five hundred dollars as given below. The next meeting of the committee will be in connection with the annual meeting of the association in December, when grants for the year 1920 will be made. Applications or suggestions in regard to grants may be made to any member of the committee, and should be received before December 1. The present membership is: Henry Crew, chairman; W. B. Cannon, R. T. Chamberlin, G. N. Lewis, George T. Moore, G. H. Parker, Robert M. Yerkes, and Joel Stebbins, secretary.

Following are the grants for 1919:

MATHEMATICS

Three hundred dollars to Professor Solomon Lefschetz, of Kansas University, to assist in the publication of his memoir on algebraic surfaces, which was awarded the Bordin prize of the Paris Academy of Sciences.